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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,494	03/18/2004	Gary Flohr	81095342 (FGT 3E9)	7706
36865	7590	04/13/2005	EXAMINER	
ALLEMAN HALL MCCOY RUSSELL & TUTTLE, LLP 806 S.W. BROADWAY, SUITE 600 PORTLAND, OR 97205			RIDDLE, KYLE M	
			ART UNIT	PAPER NUMBER
			3748	

DATE MAILED: 04/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/804,494	Applicant(s) FLOHR, GARY	
	Examiner Kyle M. Riddle	Art Unit 3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-22 is/are allowed.
- 6) ☒ Claim(s) 23-25 is/are rejected.
- 7) ☒ Claim(s) 26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Amendment***

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Ricco et al. (U.S. Patent 5,532,526).

Ricco et al. disclose a control circuit for controlling actuators comprising:

- a first voltage source consisting of a low-voltage battery B (column 3, lines 21-22);
- an energy storage device as a capacitor Ci with a higher voltage than battery B (column 3, lines 39-41);
- the circuit comprising plural valve actuators Li, storage capacitors Ci, coupling diodes Di, controlled electronic switches SWi, and main switch SWR (column 3, lines 27-30);
- the current flowing in series in boost configuration from the battery B to the actuator Li when the switch SWR and SWi are in a first position (column 4, lines 23-25), and the current flows in series through the valve actuator Li to the capacitor Ci when the switch SWR and SWi are in a second position (column 4, lines 1-7);
- each actuator switch SWi independently provides for connecting the actuator to battery B for actuator energization (column 3, lines 41-45);

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- each actuator switch SW<sub>i</sub> independently opened to allow free-wheeling diode D<sub>i</sub> to be biased directly enabling the dissipation or discharge of the actuator current (column 4, lines 31-39);

- the selected actuator diode D<sub>i</sub> operates as a free-wheeling diode (column 4, lines 32-35).

***Allowable Subject Matter***

3. Claim 26 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. Claims 1-22 are allowed.

***Response to Arguments***

5. Applicant's arguments filed 31 January 2005 have been fully considered but they are not persuasive.

6. On page 12 of the amendment, second to last paragraph, applicant argues that the switch SW<sub>i</sub> of Ricco et al. does not act to independently energize the actuator or allow for dissipation of freewheel current. Examiner disagrees even though complete discharging requires the main switch SW<sub>R</sub> of Ricco et al. to be in certain positions, clearly each actuator subsystem is energized by the switch SW<sub>i</sub> contained within the subsystem (column 3, lines 41-45), and discharging of the current is also initiated by the respective switch SW<sub>i</sub> (column 4, lines 31-39).

7. Applicant correctly argues on pages 13 and 14 that Ricco et al. and Gaessler et al. do not fully disclose the inventive features of independent claims 1, 9, and 17. Ricco et al. do disclose multiple actuator subsystems in essentially a boost configuration, but do not include the reversing feature of the buck configuration transferring energy to battery B. Gaessler et al. do

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disclose buck and boost configurations, but is designed for only one valve actuator system and not for multiple actuator subsystems. The applicant's invention directed toward multiple valve actuator subsystems with essentially buck and boost configurations for utilizing current flow in different directions is not disclosed by Gaessler et al. or Ricco et al. Therefore, the previous rejection regarding independent claims 1, 9, and 17, along with their dependent claims, has been withdrawn.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of 2 patents.

- Caruthers et al. (U.S. Patent 6,175,484) disclose an energy recovery circuit for solenoid drivers with multiple voltage sources, energy storage, and reverse current switching.

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- Newton et al. (U.S. Patent 6,631,067) disclose an electromagnetic actuator with multiple voltage sources, diodes, capacitors, and reverse current switching.

*Communication*

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyle M. Riddle whose telephone number is (571) 272-4864. The examiner can normally be reached on M-F (07:30-5:00) Second Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kyle M. Riddle  
Examiner  
Art Unit 3748

kmr



THOMAS DENION  
SUPERVISORY PATENT EXAMINER  
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